

What is claimed is:

1. A magnetic/metallic security device for use with an item to provide multiple security features, said magnetic/metallic security device comprising:

a carrier substrate having a width;

a metallic layer disposed on at least a portion of said carrier substrate, for providing metallic security features, wherein said metallic layer forms a plurality of conductive regions on said carrier substrate, wherein said conductive regions are separated by non-conductive regions which extend entirely across said width of said carrier substrate; and

a magnetic layer disposed on and in substantially identical registration with at least one of said plurality of said conductive regions, for providing magnetic security features, wherein said magnetic layer and said at least one conductive regions in substantially identical registration include recesses, said recesses forming visually identifiable indicia.

2. The magnetic/metallic security device of claim 1, wherein said magnetic layer includes a chemical resist.

3. The magnetic/metallic security device of claim 1, wherein said magnetic layer includes a hard magnetic substance capable of being magnetized for recording data on said magnetic layer.

4. The magnetic/metallic security device of claim 1, wherein said magnetic layer includes at least one type of magnetic substance having at least one predetermined magnetic characteristic, and wherein said at least one predetermined magnetic characteristic is detectable, for authenticating an item having said security device.

5. The magnetic/metallic security device of claim 4, wherein said at least one type of magnetic substance is a soft magnetic pigment capable of holding a level of magnetism for a limited period of time, and wherein said at least one predetermined magnetic characteristic includes said level of magnetism capable of being held by said soft magnetic pigment and a rate of decay of said level of magnetism over said limited period of time.

6. The magnetic/metallic security device of claim 1, wherein said magnetic layer includes at least first and second types of magnetic substances having at least first and second predetermined magnetic characteristics respectively, and wherein said first and second types of magnetic substances are arranged in said magnetic layer in a predetermined pattern representing data encoded with said magnetic layer such that said first and second predetermined characteristics are detectable to read said predetermined pattern and decode said data.

7. The magnetic/metallic security device of claim 6, wherein said first and second predetermined magnetic characteristics represent binary integers, and wherein said predetermined pattern of said first and second types of magnetic substances represents data in a binary coded format.

8. The magnetic/metallic security device of claim 6, wherein said first and second types of magnetic substances having said first and second predetermined magnetic characteristics include first and second soft magnetic pigments having first and second predetermined magnetic decay rates.

9. The magnetic/metallic security device of claim 6, wherein said first and second types of magnetic substances having said first and second predetermined magnetic characteristics include first and second soft magnetic pigments capable of holding first and second predetermined levels of magnetism.

10. The magnetic/metallic security device of claim 1, wherein at least a portion of said metal layer includes at least

one predetermined magnetic characteristic, and wherein said at least one predetermined magnetic characteristic is detectable, for authenticating an item having said security device.

11. The magnetic/metallic security device of claim 1, wherein at least first and second conductive regions of said plurality of conductive regions separated by non-conductive regions have at least two different predetermined lengths forming at least first and second metallic characteristics respectively, forming a predetermined pattern representing data encoded by said metallic layer, and wherein said predetermined pattern may be detected and read to decode said data.

12. The magnetic/metallic security device of claim 11, wherein said conductive regions include first and second predetermined lengths representing binary integers, and wherein said predetermined pattern of said first and second lengths of said conductive regions encodes said data in a binary coded format.

13. The magnetic/metallic security device of claim 11, wherein said data encoded by said predetermined pattern of said conductive regions is a verification code.

14. The magnetic/metallic security device of claim 1, wherein said visually identifiable graphic indicia is formed positively on said carrier substrate by said magnetic layer and said metallic layer underlying said magnetic layer.

15. The magnetic/metallic security device of claim 1, wherein said visually identifiable indicia is formed negatively on said carrier substrate by said magnetic layer and said metallic layer underlying said magnetic layer.

16. The magnetic/metallic security device of claim 1, further including a coating layer disposed over said visually identifiable indicia formed by said metallic layer and said magnetic layer.

17. The magnetic/metallic security device of claim 16, wherein said visually identifiable indicia is hidden when viewed by reflected light and is observable when viewed by transmitted light.

18. The magnetic/metallic security device of claim 1, further including at least one magnetic track disposed along at least a portion of said substrate, for recording data.

19. A magnetic security device for use with an item, said magnetic security device comprising:

a carrier substrate having a width;

a metallic layer disposed on at least a portion of said carrier substrate, for providing metallic security features, wherein said metallic layer forms a plurality of conductive regions on said carrier substrate, wherein said conductive regions are separated by non-conductive regions which extend entirely across said width of said carrier substrate; and

a magnetic layer disposed on and in substantially identical registration with at least one of said plurality of conductive regions, for providing magnetic security features, wherein said magnetic layer and said at least one conductive regions in substantially identical registration include recesses, said recesses forming visually identifiable indicia, wherein said plurality of magnetic regions include at least first and second types of soft magnetic pigments having first and second predetermined magnetic decay rates, wherein said plurality of magnetic regions having said first and second predetermined magnetic decay rates are arranged in a predetermined pattern representing data encoded by said magnetic regions such that said first and second predetermined magnetic decay rates are capable of being detected and read to decode said data.

20. The magnetic security device of claim 19, wherein said first and second predetermined magnetic decay rates represent binary integers, and wherein said predetermined pattern of said magnetic regions having said first and second predetermined magnetic decay rates represents data in a 5 binary coded format.

21. The magnetic security device of claim 19, wherein said first and second types of soft magnetic pigments are capable of holding first and second predetermined levels of magnetism, wherein said magnetic regions having said first and second levels of magnetism are arranged in said predetermined pattern such that said first and second levels of magnetism may be detected and read to decode said data encoded by said magnetic regions. 10

22. The magnetic security device of claim 19, wherein said magnetic regions are formed as graphic indicia on said carrier substrate. 15

23. A metallic security device for use with an item, said metallic security device comprising:

a carrier substrate; and

a plurality of conductive regions disposed on said carrier substrate, wherein said conductive regions are separated by non-conductive regions and have at least two different predetermined lengths forming a predetermined pattern for representing encoded data, and wherein said predetermined lengths of said conductive regions are detectable to read said predetermined pattern and decode said data. 20

24. The metallic security device of claim 23, wherein said conductive regions include first and second predetermined lengths representing binary integers, and wherein said predetermined pattern of said first and second lengths of said conductive regions encodes said data in a binary coded format. 30

25. The metallic security device of claim 23, wherein said non-conductive regions are formed as graphic indicia and said conductive regions are formed around said graphic indicia.

26. A method of making a magnetic/metalllic security device having a plurality of security features, said method comprising:

providing a carrier substrate having first and second surfaces;

applying a metallic layer to at least a portion of said first surface of said carrier substrate; 45

applying a magnetic layer over at least a portion of said metallic layer; and

etching said magnetic layer and said metallic layer such that at least a portion of said magnetic layer and said metallic layer are in substantially identical registration and together form visually identifiable indicia on said carrier substrate, wherein said metallic layer is etched such that said metallic layer forms a plurality of conductive regions on said substrate, wherein said conductive regions are separated by non-conductive regions extending across an entire width of said carrier substrate. 50

27. The method of claim 26, wherein etching said magnetic layer and said metallic layer includes chemically etching said magnetic layer and said metallic layer. 60

28. The method of claim 26, wherein etching said magnetic layer and said metallic layer includes laser etching said magnetic layer and said metallic layer. 65

29. The method of claim 26, wherein etching said magnetic layer and said metallic layer includes mechanically scribing said magnetic layer and said metallic layer.

30. The method of claim 26, wherein said magnetic layer includes at least first and second types of magnetic substances having at least first and second predetermined magnetic characteristics respectively, and wherein said magnetic layer is applied such that said first and second types of magnetic substances are arranged in said magnetic layer in a predetermined pattern.

31. A method of making a magnetic/metalllic security device having a plurality of security features, said method comprising:

providing a carrier substrate having first and second surfaces;

applying a metallic layer to at least a portion of said first surface of said carrier substrate;

applying a magnetic chemical resist to at least a portion of said metallic layer, wherein said magnetic chemical resist forms a pattern on said metallic layer; and chemically etching said metallic layer to remove exposed portions of said metallic layer, wherein chemical etching is resisted by said magnetic chemical resist such that said magnetic chemical resist and at least a portion of said metallic layer underlying said magnetic chemical resist are in substantially identical registration and together form visually identifiable indicia on said carrier substrate, wherein said metallic layer is chemically etched such that said metallic layer forms a plurality of conductive regions on said substrate, wherein said conductive regions are separated by non-conductive regions extending across an entire width of said carrier substrate.

32. The method of claim 31, wherein said magnetic chemical resist includes a film-forming chemical resisting resin containing magnetic pigments.

33. The method of claim 32, wherein said film-forming chemical resisting resin includes a resin selected from the group consisting of solvent based resins, water based resins, solid based resins, ultra violet polymerized resins, and electron beam polymerized resins.

34. The method of claim 32, wherein said magnetic pigments include soft magnetic pigments having at least one predetermined magnetic characteristic. 40

35. The method of claim 31 wherein the step of applying said magnetic chemical resist includes printing said pattern using said magnetic chemical resist.

36. The method of claim 31 further including:

applying an additional layer over said pattern formed by said magnetic chemical resist and said portion of said metallic layer underlying said magnetic chemical resist.

37. A method of authenticating a magnetic/metalllic security device including at least one magnetic region having at least one predetermined magnetic characteristic and at least one metallic region having at least one predetermined metallic characteristic, said method comprising the steps of:

charging said magnetic region of said magnetic/metalllic security device;

detecting said predetermined magnetic characteristic of said charged magnetic region;

detecting said at least one predetermined metallic characteristic of said at least one metallic region; and

comparing said at least one predetermined magnetic characteristic and said at least one predetermined metallic characteristic to expected magnetic and metallic characteristics.

38. The method of claim 37 wherein said magnetic characteristic includes a magnetic level.

39. The method of claim 38 wherein said magnetic level is selected from the group consisting of a high magnetic level, a low magnetic level and a medium magnetic level.

40. The method of claim 37 wherein said magnetic characteristic includes the rate of decay of said charged magnetic region.

41. The method of claim 37 further including before the step of charging said magnetic region the step of determining the presence of said magnetic region on said magnetic/metallic security device.

42. The method of claim 37 further including before the step of charging said magnetic region the step of determining the presence of said metallic region on said magnetic/metallic security device.

43. The method of claim 37 wherein said at least one magnetic region includes hard magnetics for recording data thereon, and further including the step of reading said data recorded on said at least one magnetic region.

44. The method of claim 43 wherein said data recorded on said magnetic region includes analog data.

45. The method of claim 43 wherein said data recorded on said magnetic region includes digital data.

46. The method of claim 37 wherein said metallic characteristic includes a length of said metallic region.

47. A magnetic/metallic security device for use with an item to provide multiple security features, said magnetic/metallic security device comprising:

a carrier substrate;

a metallic layer disposed on at least a portion of said carrier substrate, for providing metallic security features; and

a magnetic layer disposed on and in substantially identical registration with said metallic layer, for providing magnetic security features, wherein said magnetic layer and said metallic layer together form visually identifiable graphic indicia on said at least a portion of said carrier substrate.

48. The magnetic/metallic security device of claim 47, wherein said visually identifiable graphic indicia is formed as magnetic/metal graphic indicia readable by MICR detectors.

49. A magnetic/metallic security device for use with an item to provide multiple security features, said magnetic/metallic security device comprising:

a carrier substrate;

a metallic layer disposed on at least a portion of said carrier substrate, for providing metallic security features; and

a magnetic layer disposed on and in substantially identical registration with said metallic layer, for providing magnetic security features, wherein said magnetic layer and said metallic layer together form visually identifiable magnetic/metal graphic indicia on said at least a portion of said carrier substrate.

50. A metallic security device for use with an item, said metallic security device comprising:

a carrier substrate having a width; and

a plurality of conductive regions formed by a metallic layer disposed on said carrier substrate, wherein said conductive regions are separated by non-conductive regions extending across said width of said carrier substrate, said conductive regions having at least two different predetermined lengths forming a predetermined pattern for representing encoded data, and wherein said predetermined pattern may be detected and read to decode said data; and

a magnetic layer disposed on and in substantially identical registration with said metallic layer at least in said plurality of conductive regions, for providing magnetic

security features, wherein said magnetic layer and said metallic layer in substantially identical registration include recesses, said recesses forming visually identifiable indicia.

51. A method of making a magnetic/metallic security device having a plurality of security features, said method comprising:

providing a carrier substrate having a width and first and second surfaces;

applying a metallic layer to at least a portion of said first surface of said carrier substrate, said applied metallic layer forming a plurality of conductive regions separated by nonconductive regions that extend entirely across said width of said carrier substrate;

applying a magnetic layer over at least a portion of said metallic layer; and

etching at least one of said magnetic layer and said metallic layer such that at least a portion of said magnetic layer and said metallic layer are in substantially identical registration and wherein said magnetic layer and said metallic layer in substantially identical registration include recesses, said recesses forming visually identifiable indicia.

52. A method of making a magnetic/metallic security device having a plurality of security features, said method comprising:

providing a carrier substrate having a width and first and second surfaces;

applying a metallic layer to at least a portion of said first surface of said carrier substrate;

applying a magnetic chemical resist to at least a portion of said metallic layer, wherein said magnetic chemical resist forms a pattern on said metallic layer; and

chemically etching said metallic layer to remove exposed portions of said metallic layer forming a plurality of conductive regions separated by non-conductive regions that extend entirely across said width of said carrier substrate, wherein chemical etching is resisted by said magnetic chemical resist such that said magnetic chemical resist and at least a portion of said metallic layer underlying said magnetic chemical resist are in substantially identical registration and together form visually identifiable indicia on said carrier substrate, and wherein said magnetic layer and said metallic layer in substantially identical registration include recesses, said recesses forming said visually identifiable indicia.

53. A method of making a magnetic/metallic security device having a plurality of security features, said method comprising:

providing a carrier substrate having first and second surfaces;

applying a metallic layer directly to at least a portion of said first surface of said carrier substrate; and

applying a magnetic layer over at least a portion of said metallic layer such that at least a portion of said magnetic layer and said metallic layer are in substantially identical registration and wherein said magnetic layer and said metallic layer in substantially identical registration together form visually identifiable graphic indicia.

54. A magnetic/metallic security device for use with an item to provide multiple security features, said magnetic/metallic security device comprising:

a carrier substrate having a width; and
 a magnetic/metal security feature comprising:

a magnetic/metal security feature including a metallic layer disposed on at least a portion of said carrier substrate, for providing metallic security features, along with a magnetic layer disposed on and in substantially identical registration with said metallic layer, for providing magnetic security features, wherein said magnetic layer and said metallic layer together form visually identifiable magnetic/metal graphic indicia on said at least a portion of said carrier substrate; and/or

a magnetic/metal security feature including a metallic layer disposed on at least a portion of said carrier substrate, for providing metallic security features, wherein said metallic layer forms a plurality of conductive regions on said carrier substrate, wherein said conductive regions are separated by non-conductive regions which extend entirely across said width of said carrier substrate, along with a magnetic layer disposed on and in substantially identical registration with at least one of said plurality of conductive regions, for

providing magnetic security features, wherein said magnetic layer and said at least one conductive regions in substantially identical registration include recesses, said recesses forming visually identifiable indicia.

5 55. A magnetic/metallic security device for use with an item to provide multiple security features, said magnetic/metallic security device comprising:

a carrier substrate;

10 a metallic layer disposed on at least a portion of said carrier substrate, for providing metallic security features; and

15 a magnetic layer disposed on and in substantially identical registration with said metallic layer, for providing magnetic security features, wherein said magnetic layer and said metallic layer together form visually identifiable magnetic/metal graphic indicia in the form of discrete, non-connected, graphic indicia on said at least a portion of said carrier substrate.

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